

# Marshall Burke

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## Professional appointments and affiliations

- 2014-present     Assistant Professor, Earth System Science Dept., Stanford University  
Center Fellow, Center on Food Security and the Environment,  
Freeman Spogli Institute for International Studies, Stanford University
- 2014-2015        (On Leave) Visiting Fellow, Stanford Institute for Economic Policy Research
- 2015-present     Faculty Affiliate, Stanford Center on International Development  
2015-present     Faculty Affiliate, Center for Effective Global Action

## Education

- Ph.D., Agricultural and Resource Economics, UC Berkeley, 5/2014  
B.A. International Relations, Stanford University, 6/2003

## Working papers

- Adaptation to climate change: evidence from US agriculture (with Kyle Emerick). [*Resubmitted, American Economic Journal - Economic Policy*]
- Buying low and selling high: an arbitrage puzzle in Kenyan villages.
- The global non-linear effect of temperature on growth (with Sol Hsiang and Edward Miguel).
- Reconciling temperature-conflict results in Kenya (with Sol Hsiang and Edward Miguel)
- Analysis of statistical power reconciles climate-conflict results in Africa (with Sol Hsiang, Edward Miguel, Mark Cane, and Kyle Meng).
- Intergenerational transfer of human capital: evidence from weather shocks in Sub-Saharan Africa.

## Published journal articles

1. Climate and conflict (with Sol Hsiang and Edward Miguel) [forthcoming, *Annual Review of Economics*]
2. Incorporating climate uncertainty into estimates of climate change impacts (with Edward Miguel, Shanker Satyanath, John Dykema, and David Lobell). [forthcoming, *Review of Economics and Statistics*]
3. Income shocks and HIV (with Erick Gong and Kelly Jones). [forthcoming, *Economic Journal*]
4. Sol Hsiang, Marshall Burke, and Edward Miguel. 2014. Reconciling climate-conflict meta-analyses: reply to Buhaug et al. *Climatic Change*, DOI 10.1007/s10584-014-1276-z
5. S. Hsiang\*, M. Burke\*, and E. Miguel. 2013. Quantifying the influence of climate on human conflict. *Science* 341: 1212. (\*denotes equal authorship)

6. S. Hsiang and M. Burke. 2013. Climate, conflict, and social stability: what does the literature say? *Climatic Change*, 10.1007/s10584-013-0868-3.
7. J. Burney, L. Woltering, M. Burke, D. Pasternak, R. Naylor. 2010. Solar powered drip irrigation enhances food security in the Sudano-Sahel. *PNAS*, 10.1073/pnas.0909678107
8. T. Hertel, M. Burke, D. Lobell. 2010. The poverty implications of climate-induced yield changes by 2030. *Global Environmental Change*, 20(4), 577-585.
9. D. Lobell and M. Burke. 2010. On the uses of statistical models to predict crop yield responses to climate change. *Agricultural and Forest Meteorology* 150, 1443-1452.
10. M. Burke, E. Miguel, S. Satyanath, J. Dykema, D. Lobell. 2009. Warming increases the risk of civil war in Africa. *PNAS* 106, 20670-20674.
11. M. Burke, D. Lobell, L. Guarino. 2009. Shifts in African crop climates by 2050 and the implications for adaptation. *Global Environmental Change* 19, 317-325.
12. D. Lobell, M. Burke et al. 2008. Prioritizing climate change adaptation needs for food security in 2030. *Science* 319, 607-610.
13. D. Lobell, M. Burke. 2008. Why are agricultural impacts of climate change so uncertain? The importance of temperature relative to precipitation. *Environmental Research Letters* 3, July 2008.
14. M. Burke, K. Oleson, E. McCullough, J. Gaskell. 2008. Quantifying the environmental impacts of trade in meat products. *Environmental Modeling and Assessment* 13, July 2008.
15. R. Naylor, A. Liska, M. Burke et al. 2007. The ripple effect: Biofuels, food security, and the Environment. *Environment* 49 (9), 30-43.
16. J. Galloway, M. Burke et al. 2007. International trade in meat: The tip of the pork chop. *Ambio* 36 (8), 622-628.
17. R. Naylor, D. Battisti, D. Vimont, W. Falcon, M. Burke. 2007. Assessing risks of climate variability and climate change for Indonesian rice agriculture, *PNAS* 104, 7752-7757.
18. R. Naylor and M. Burke. 2005. Aquaculture and ocean resources: Raising the tigers of the sea. *Annual Review of Environment and Resources* 30: 185-218.
19. W. Falcon, R. Naylor, W. Smith, M. Burke, and E. McCullough. 2004. Using climate models to improve Indonesian food security. *Bulletin of Indonesian Economic Studies* 40(3): 355-377.

## Books and book chapters

- D. Lobell and M. Burke, eds. 2009. *Climate change and food security: Adapting Agriculture to a Warmer World*. Springer, (co-editor, and contributing four chapters).
- D. Lobell and M. Burke. 2009. Economic impacts of climate change on agriculture to 2030, in *Climate Change and Crop Production*, M. Reynolds ed., CABI.
- J. Galloway, M. Burke et al. 2007. Animal production and the nitrogen cycle, in *Livestock and a Changing Landscape*, H. Mooney et al, eds. SCOPE Scientific and Technical volume.

## Awards

- National Science Foundation, Graduate Student Research Fellowship, 2009-2013.
- Berkeley Fellowship, 2009-2011.

## Grants

*Climate and global poverty*, Stanford Global Development and Poverty initiative, \$50,000. PI with Sol Hsiang.

*Experimental evidence on grain storage among farmers and traders in Kenya*, Gates Foundation ATAI Initiative, \$425,000. Co-investigator with Edward Miguel and Lauren Falcao, 2014.

*Barriers to private-sector arbitrage in Kenyan maize markets*, Center for Economic Policy Research, \$48,000, Investigator with Lauren Falcao, 2013.

*Quantifying agricultural adaptation to climate change*, Giannini Foundation, \$25,000. Co-investigator with Edward Miguel and Solomon Hsiang, 2013.

*Price fluctuations, grain storage, and barriers to arbitrage in Kenyan maize markets*, Anonymous donor, \$58,000. Co-investigator with Edward Miguel and Lauren Falcao, 2013.

*Enhancing smallholder storage*, Anonymous donor, \$100,000. Co-investigator with Edward Miguel and One Acre Fund, 2012.

*Optimal finance for agricultural technology adoption*, Gates Foundation ATAI Initiative, \$240,000. Co-investigator with Edward Miguel, 2011.

*Weather risk, index insurance, and agricultural technology adoption*, Gates Foundation ATAI Initiative, \$50,000. Co-investigator with Edward Miguel. 2010.

*Prioritizing Investments in Food Security Under a Changing Climate*, Rockefeller Foundation, \$350,000. Co-investigator with David Lobell and others. 2008.

*An Alternative Development Model? Assessing Solar Electrification for Income Generation in Rural Benin*. Stanford Woods Institute Environmental Ventures Project, \$150,000. Co-investigator with Roz Naylor and Jen Burney. 2008.

## Teaching experience

Instructor, Berkeley/CEGA Impact Evaluation Workshop. Nairobi, Kenya, 2012.

Teaching assistant, UC Berkeley Econ 270: Development Economics (graduate). 2012.

Teaching assistant, Stanford Econ 106/206: World Food Economy (undergraduate/graduate). 2003-05.

## Work experience

1/1/2007-6/1/2009. Program Manager, Program on Food Security and the Environment, Stanford University.

1/1/2004-12/31/2006. Research Associate, Center on Environmental Science and Policy, Stanford University.

## Other

Referee: *American Economic Review*, *Quarterly Journal of Economics*, *Journal of Political Economy*, *Economic Journal*, *Review of Economics and Statistics*, *PNAS*, *American Journal of Agricultural Economics*, *World Bank Economic Review*, *Journal of Environmental Economics and Management*, *Journal of Development Economics*, *World Politics*, *Journal of the European Economic Association*, *Journal of Development Studies*, *Journal of Economic Geography*, *Journal of African Economies*, *Nature Climate Change*, *Climatic Change*, *Climate Research*,

*Environmental Research Letters, Global Environmental Change, Journal of Peace Research, PLOS One, Food Policy*

Other writing:

1. "Climate robustly linked to African civil war", *PNAS*, 2010 (with Ted Miguel, Shanker Satyanath, John Dykema, and David Lobell). [Comment on Buhaug, 2010]
2. "Weather and Violence", *New York Times* op-ed (with Sol Hsiang and Ted Miguel), August 30th, 2013
3. "Temperature and violence", *Nature Climate Change*, 2014 (with Mark Cane, Ted Miguel, Sol Hsiang, David Lobell, Kyle Meng, and Shanker Satyanath). [comment on Raleigh et al 2014]

Media:

Media coverage of *Quantifying the influence of climate on human conflict* (2013): Economist, NPR, Wall Street Journal, BBC, CNN, the Atlantic, Washington Post, Time, National Geographic, The Onion, among others.

Media coverage of *Warming increases the risk of civil war in Africa* (2009): Economist, CNN, BBC, among others.

Recent talks:

**2014:** Cornell Econ, Cornell Applied Economics and Management, Kellogg (Northwestern) Management and Strategy, UBC Economics, Stanford Environmental Forum, World Bank Development Economics, Minnesota Applied Economics, University of Colorado - Boulder Environmental Studies, Stanford Environmental Earth System Sciences, Pacific Development Conference, University of Washington Evans School

**2013:** UCSD Econ/IRPS, Berkeley Public Policy, Pacific Development Conference, Working Group on African Political Economy (WGAPE)

Last updated: April 1, 2015